Tony Knowles, Governor

Alaska Department of Community and Economic Development

Division of International Trade and Market Development
550 W. 7th Avenue, Suite 1770, Anchorage, AK 99501-3510
Telephone: (907) 269-8110 • Fax: (907) 269-8125 • Text Telephone: (907) 465-5437
Email: AKtrade@dced.state.ak.us • Website: www.dced.state.ak.us/trade/

Required Quarterly Report **Date: October 16, 2001**

Korea, Quarterly Energy Report 3rd Quarter of 2001

Prepared by: **K. S. Kim, State Trade Representative in Korea**

Report Highlights: The growth rate of Korea's energy consumption:

According to the Korean Ministry of Commerce, Industry and Energy (MOCIE), Korea's energy consumption reached around 10% in the 1990s, ranking the first or second in the world. But, it dropped to 6.4% in 2000. During the 1st half of 2001, Korea's energy consumption total 98.881 million TOE (tonnage of oil equivalent), 2.3% up from the same period of 2000: While oil consumption decreased by 0.8%, the consumption on bituminous coal, LNG and nuclear power increased by 1.8%, 13.4% and 5.2% respectively.

The weak energy demand is projected to continue through the 2nd half of 2001 and pick up its pace of growth depending upon when the world economy will recover.

Table of Contents

1. Energy Consumption in the 1st Half of 2001

According to the Korean Ministry of Commerce, Industry and Energy (MOCIE), Korea's energy consumption increased by 2.3 % during the 1st half of 2001, compared with the corresponding period of 2000. While oil consumption decreased by 0.8%, the consumption on bituminous coal, LNG and nuclear power increased by 1.8%, 13.4% and 5.2% respectively.

Energy Consumption by Source

Classification	Jun 2000	Jun 2001	1st half, 2000		1st half, 2001	
			Volume	Share (%)	Volume	Share (%)
Primary Energy: (1,000 toe)	**14,450 (9.2)**	**15,408 (6.6)**	**96,702 (8.9)**	**100.0**	**98,881 (2.3)**	**100.0**
Petroleum (1,000 bbl)	55,442 (10.0)	58,583 (5.7)	378,896 (6.2)	53.0	375,792 (0.8)	51.3
LNG (1,000 ton)	735 (11.0)	773 (5.1)	7,733 (20.2)	10.4	8,772 (13.4)	11.5
Coal:						
Anthracite (1,000 ton)	457 (13.8)	645 (41.2)	2,766 (24.6)	1.4	3,222 (16.5)	1.7
Bituminous (1,000 ton)	5,143 (13.2)	5,630 (9.5)	29,294 (10.0)	20.0	29,836 (1.8)	19.9
Nuclear Power (GWh)	8,378 (1.3)	8,535 (1.9)	52,524 (10.2)	13.6	55,236 (5.2)	14.0
Hydro Power (GWh)	476 (8.2)	383 (19.5)	2,332 (14.4)	0. 6	1,741 (25.3)	0.4
Others (1,000 toe)	168 (18.2)	184 (9.5)	1,020 (17.9)	1.1	1,121 (10.0)	1.1

(Source: the Ministry of Commerce, Industry and Energy, Seoul, Korea)

Note) Numbers in parentheses are percentage growth rates (year-on-year).

Meanwhile, during the 1st half of 2001, the final energy consumption recorded 78.119 TOE, a 1.7% increase year-on-year:

- Electricity consumption increased by 8.1%, and city gas by 6.6 %.
- In the industrial sector, city gas consumption increased by 10.4 % and electricity consumption by 2.3 %. The growth rate of overall energy consumption in the industrial sector recorded 0.4 %.
- In the transport sector, diesel consumption increased by 5.1 %, aircraft fuel by 5.0 %, and LPG by 14.5 %, while oil consumption decreased by 5.5 %. Overall consumption in the transport sector increased by 2.8%
- In the home and commercial sector, energy consumption increased by 3.3 %, with electricity consumption increasing by 17.3 %.

Final Energy Consumption

Classification	Jun 2000	Jun 2001	1st half, 2000		1st half, 2001	
			Volume	Share (%)	Volume	Share (%)
Final Energy: (1,000 toe)	**11,071 (9.2)**	**11,730 (5.9)**	**76,804 (7.8)**	**100.0**	**78,119 (1.7)**	**100.0**
Industrial	6,886 (8.8)	7,002 (1.7)	41,627 (7.4)	54.2	41,791 (0.4)	53.5
Transport	2,526 (17.8)	2,812 (11.3)	15,222 (11.9)	19.8	15,647 (2.8)	20.0
Home/Commercial	1,461 (1.2)	1,693 (15.8)	18,592 (6.0)	24.2	19,204 (3.3)	24.6
Public and Others	198 (8.2)	223 (12.7)	1,363 (3.3)	1.8	1,476 (8.3)	1.9

(Source: the Ministry of Commerce, Industry and Energy, Seoul, Korea)

Note) Numbers in parentheses are percentage growth rates (year-on-year).

2. Energy Import in the 1st half of 2001

During 1st half of 2001, Korea's energy import reached $ 18.4 billion, which is 3.7 % increase over the corresponding period of 2000:

- Crude oil (64.4 % of total energy imports) : $ 11.8 billion, 1.1 % increase
- LNG: $ 2.3 billion, 24.6 % increase
- Bituminous Coal: $ 14 billion (3. 1 % increase)

Compared with 1st half of 2000, the import volume of LNG in the 1st of half of 2001 increased by 15.2 %:

Korea's LNG Import

Classification	1st half of 2000	1st half of 2001
Volume (1,000 ton)	7,711	8,887
Unit Cost of Import ($/ton)	242	262

(Source: the Ministry of Commerce, Industry and Energy, Seoul, Korea)

Korea's import of crude oil also increased to 457 million barrels in the 1st half of 2001, 1.4 % up from the same period of 2000:

Korea's Crude Oil Import

Classification	1st half of 2001	1st half of 2001
Volume (million bbl)	450	457
Unit Cost of Import ($/bbl, CIF)	26.0	25.9

(Source: the Ministry of Commerce, Industry and Energy, Seoul, Korea)

Korea's import of bituminous coal reached 30.5 million tons in the 1st half of 2001, 0.2 % up from the 1st half of 2000:

Korea's Bituminous Coal Import

Classification	1st half of 2000	1st half of 2001
Volume (1, 000 tons)	30,462	30,508
Unit Cost of Import ($/ton)	34.1	34.1

(Source: the Ministry of Commerce, Industry and Energy, Seoul, Korea)

Korea's Energy Import & Export: 1st half of 2001

(Unit: $ million, %)

Classification	**1st half of 2000**		**1st half of 2001**	
	Volume	**Value**	**Volume**	**Value**
Total Energy Import:	**-**	**9,280 (115.1)**	**-**	**10,004 (7.8)**
Petroleum (million bbl)	293.5 (5.2)	7,562 (132.5)	303.1 (3.3)	7,901 (4.5)
Crude Oil (million bbl)	238 (1.9)	6,096 (133.7)	249.4 (4.8)	6,338 (4.0)
Petroleum Products (million bbl)	55.5 (22.3)	1,466 (127.8)	53.7 (-3.3)	1,562 (6.6)
LNG (1,000 ton)	4,818 (22.2)	1,142 (121.7)	5,711 (18.5)	1,553 (35.9)
Anthracite Coal (1,000 ton)	376 (23.3)	14 (13.3)	688 (83.0)	24 (69.7)
Bituminous Coal	14,227 (22.8)	487 (7.7)	14,809 (4.1)	502 (3.0)
Fuel for Nuclear Plants	-	75 (-9.8))	-	25 (-66.3)
Petrochemical Export:	75.5 (2.1)	2,104 (115.8)	83.9 (11.1)	2,287 (8.7)

(Source: the Ministry of Commerce, Industry and Energy, Seoul, Korea)

Note) Numbers in parentheses are percentage growth rates (year-on-year).

3. Energy Outlook for 2001 - 2006

1) Primary Energy

Slackened economy slow down energy demand growth continually. At the glance of the trend of Korean total energy demand in 2001 revealed us how serious the impacts of sluggish economy are. The growth rate of the energy consumption fell to 2.3 % in the 1st half of 2001 from 8.9 % of the same period of 2000.

Main factor causing this downturn trend was slackened economy. Even though oil prices have become relatively stable, Korean economy doesn't show any sign of recovery since industries like semiconductor and IT seem to be in a serious trouble.

Therefore, the forecast by KEEI (Korea Energy Economics Institute) shows a moderate growth of 3.0 % in energy demand for 2001. Primary energy consumption is projected to grow 3.9 % annually between 2001 and 2006.

Primary Energy Demand Forecast (2001 - 2006)

	2001	2002	2003	2004	2005	2006
Coal	68,816	73,333	76,079	77,979	80,320	82,490
(1000 ton)	(3.4)	(6.6)	(3.7)	(2.5)	(3.0)	(2.7)
Oil	744,129	766,885	785,874	803,296	820,487	837,008
(1000 bbl)	(5.9)	(3.1)	(2.5)	(2.2)	(2.1)	(2.0)
LNG	16,772	18,970	21,189	23,144	25,118	27,057
(1000 ton)	(15.2)	(13.1)	(11.7)	(9.2)	(8.5)	(7.7)
Hydro	4,567	5,446	5,571	6,157	4,724	5,111
(GWh)	(-18.6)	(19.2)	(2.3)	(10.5)	(-23.3)	(8.2)
Nuclear	112,272	117,752	124,323	130,912	137,826	142,811
(GWh)	(3.0)	(4.9)	(5.6)	(5.3)	(5.3)	(3.6)
Other	2,756	3,070	3,369	3,684	3,966	4,279
(1000 TOE)	(29.4)	(11.4)	(9.8)	(9.3)	(7.7)	(7.9)
Total	198,596	209,342	218,527	226,837	234,844	242,559
(1000 TOE)	(3.0)	(5.4)	(4.4)	(3.8)	(3.5)	(3.3)

Note) Numbers in parentheses are percentage growth rates from the previous year.

(Source: KEEI)

Coal consumption is projected to show an annual average growth rate of 3.6% during 2001 – 2006.

Oil consumption is expected to decline in 2001 due to the sluggish economy, but In 2002, when the economy is estimated to recover, the oil consumption is projected to grow approximately 3%, and then, record an overall average growth rate of 2% until 2006.

LNG consumption is expected to continue its expansion, with projected 10.9% annual growth on average due to strong consumption for electricity. Hydro and nuclear power are expected to record an annual growth rate of 4.6%.

Composition of total energy demand by energy sources will exhibit an increasing share of LNG (from 9.8 % in 2000 to 14.5 % in 2006), while the current oil share (52% in 2000) is expected to continually decline (46.5 % in 2006)

2) Final Energy

Final energy demand is expected to grow steadily during the forecast period of 2001 - 2006, reaching 184.1 million TOE in 2006, and a relatively high increase rate of 22. 6 % over 2000 levels. Average annual growth rate is projected to reach 3.3%, lower than the annual average growth rate of 7.2 % during 1990 through 2000.

Projected demand growth is relatively strong in transport sector throughout the forecast period, while in residential/commercial/public sector; the growth is expected to be continually subdued after 2000.

Industrial sector consumption is expected to show a 4.1 % growth in 2002, followed by a stable growth rate of around 3.8% since.

Transport sector consumption is expected to grow at about 6.0 % in 2002 and then, record a stable growth rate of 4 %. Foreign exchange crisis has hit the sector severely, and the recovery is coming slowly. The 1997 level is expected to be recovered fully by 2002.

Residential/commercial/public sector consumption was most severely affected by the recent crisis. It is projected that the 1997 level would be recovered by 2001 It is expected to grow 5.2 % in 2002 and show a decline growth rate of 2 – 3 %.

Final Energy Demand Forecasts (2001 - 2006)

	2001	2002	2003	2004	2005	2006
Industry (1000 TOE)	85,129 (1.5)	88,621 (4.1)	91,747 (3.5)	94,699 (3.2)	97,531 (3.0)	100,232 (2.8)
Transport (1000 TOE)	31,995 (3.4)	33,916 (6.0)	35,570 (4.9)	37,228 (4.7)	38,867 (4.4)	40,488 (4.2)
Res/Com/Pub (1000 TOE)	35,930 (2.7)	37,797 (5.2)	39,290 (3.9)	40,421 (2.9)	41,478 (2.6)	42,480 (2.4)
Final Total (1000 TOE)	153,851 (2.5)	161,206 (4.8)	167,481 (3.9)	173,232 (3.4)	178,760 (3.2)	184,084 (3.0)
Oil (1000 bbl)	697,688 (-0.1)	718,012 (2.9)	735,162 (2.4)	751,587 (2.2)	767,868 (2.2)	784,212 (2.1)
Anthracite (1000 ton)	3,963 (18.4)	4,147 (4.6)	4,186 (0.9)	4,164 (-0.5)	4,125 (-0.9)	4,064 (-1.5)

Bituminous (1000 ton)	27,507 (1.8)	28,519 (3.7)	29,178 (2.3)	29,812 (2.2)	30,415 (2.0)	30,942 (1.7)
Electricity (TWh)	256,473 (7.1)	277,142 (8.1)	294,956 (6.4)	312,798 (6.0)	329,695 (5.4)	345,156 (4.7)
Citygas (million m3)	12,923 (8.0)	14,548 (12.6)	16,162 (11.1)	17,392 (7.6)	18,529 (6.5)	19,631 (5.9)
Heat & other (1000 TOE)	3,528 (8.6)	3,923 (11.2)	4,294 (9.5)	4,670 (8.8)	5,050 (8.1)	5,434 (7.6)

Note) Numbers in parentheses are percentage growth rates from the previous year.

(Source: KEEI)

Attachments

A. Restructuring Gas Sector

1. SUMMARY

In the continuing effort to restructure the gas sector in Korea, on August 31, 2001, the Ministry of Commerce and Industry (MOCIE) announced its implementation plan to restructure the gas sector and privatize the Korea Gas Corporation (KOGAS), state-owned gas utility. This report provides an update on the gas sector restructuring plan in Korea. Considering the fact that Korea imports 100 percent of LNG, CS Korea believes that this restructuring plan will provide U.S. companies with excellent business opportunities to enter into the Korean gas sector.

2. Gas Industry Restructuring Plan

- **Gas Import/Wholesale Units**

On August 31, 2001, MOCIE announced its plan to spin off its gas import and wholesale units of KOGAS into three affiliated companies by the end of 2001. Two of these three import/wholesale units will be sold to private investors by the end of 2002. (Note: This time schedule is based on the assumption that the National Assembly passes its legislation within this year). The government will retain one of three gas import and wholesale units as a subsidiary of KOGAS for several years, and this subsidiary may eventually be sold to private investors. However, the government has not decided how to allocate the existing long-term gas import contracts for these newly formed three gas import/wholesale units. KOGAS currently has seven long-term gas import contracts, totaling 16.98 million tons. The first of these "legacy contracts" will expire in 2007 and the last will expire in 2024. The government believes that the proper allocation of gas import contracts is the key to successful gas sector restructuring. The allocation of gas import contracts as well as terminal and transmission capacities will be determined through a special study and KOGAS's virtual simulation program by November 2001. It is expected that the gas import contracts will be grouped in order to support a fair and transparent competition between the three companies since the three gas import units are obligated to assume existing liabilities including the take-or-pay provision of the long-term import contracts and default provision. The government is currently determining how to distribute the contracts fairly among the new wholesale/importing entities based on the volume of each of the contracts. MOCIE believes that price competition should be the primary goal of the restructuring plan, not the introduction of competitive management and operational techniques.

- **KOGAS Privatization**

By March 2002, the government plans to announce its detailed plan for the KOGAS privatization and will complete KOGAS privatization by the end of 2002. The details of the qualification for bid participation should be finalized by March 2002, and the two gas import units will be sold to private investors through a competitive bidding process by the end of 2002. KOGAS, will retain control over the LNG terminals and the transmission pipelines, and this company will be separate from the three gas importing companies. KOGAS plans to complete the construction of its national trunk line and distribution system improvements by 2002. An open access system will be introduced in the gas transmission networks and the LNG terminals. MOCIE plans to take the necessary action to prepare for the revision of relevant laws to facilitate the privatization process and submit them to the National Assembly for approval by the end of 2001. Before this occurs, MOCIE plans to create a competitive atmosphere by completing gas-related infrastructure projects, improving transmission systems, and revising relevant laws. After the privatization, KOGAS will only manage and run existing transmission pipelines and may also invest in expanding the transmission network.

- **Regulatory Body**

Commission and the Gas Exchange to ensure fair access to KOGAS pipelines and LNG terminals by the end of 2002. The Gas Commission will have oversight power to insure that KOGAS import/wholesale operations compete fairly with the two privatized firms. A feasibility study has been underway since March 2000 and it is expected to be concluded by March 2002. MOCIE established the Korea Power Commission and the Korea Power Exchange early 2001 since many parties are concerned about fair competition in the power sector. In the gas sector, the Gas Commission will settle disputes although the Korea Fair Trade Commission apparently exists, it would not be involved in dispute settlement in the gas sector.

3. The current KOGAS ownership is the Korean government (26.86%), KEPCO (24.46%), the provincial governments (9.86%), foreign investors (3.8%), and publicly traded shares (35.02%). The limit on individual foreign ownership stands at 15%, and a total foreign ownership of 30% (most likely to be divided among multiple companies). The importation and wholesaling of natural gas is monopolized by KOGAS while the distribution within cities and provinces is divided among 32 retailers who have regional monopolies. Nonetheless, KOGAS is currently involved in most gas-related areas including the production and purification of natural gas (and the sale of its by-products) as well as the construction and operation of LNG terminals and the exploration, import of LNG. In 1999, KOGAS developed a blueprint on the gas industry's restructuring process and an analysis of the relevant laws and regulations pertaining to/limiting that restructuring through contracts with Arthur Andersen, the Korea Energy Economics Institute, and Anjin Accounting Co. to conduct a feasibility study on the restructuring of the Korean gas sector.

4. CS Korea Comment: Though the Korean government has announced its plan for restructuring of the gas sector, many Korean and foreign companies are raising concerns about cross-subsidization between KOGAS' import/wholesale subsidiary and its transmission/storage subsidiary. It is viewed that breaking up KOGAS will not be easy compared to the British industry, since the British and Korean gas sectors have very different market structures. Britain is a net exporter whereas Korea is only importer. Despite the Korean government's planned schedule for restructuring the gas sector, the feeling is that it will take more time to pass the KOGAS reforms than MOCIE expects, just as it did to pass the KEPCO reforms. For the power sector reform, it took one year for the National Assembly to pass KEPCO legislation. Labor issues could be another obstacle in the process of KOGAS privatization. However, the Korean government's recent announcement on the gas sector restructuring is a strong indication that this restructuring trend in Korea will solidly continue. CS Korea will continue to monitor the restructuring of this industry and encourages interested U.S. companies to participate in these on-going developments.

B. Statistical Data – Long Term Natural Gas Demand Forecast

Year	City Gas	Power Gen	Total
2000	8986	4820	13806
2001	9580	6406	15986
2003	107700	6048	16818
2005	12098	6202	18300
2010	14917	6054	20971
Annual Average Growth Rate	5.2	2.3	11.3